MEASURING COMPLIANCE AGAINST THE NSW GOVERNMENT'S AWTS GUIDELINE.

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Abstract

This paper examines compliance with the NSW Health Aerated Wastewater Treatment System (AWTS) Accreditation Guidelines (NSW Health, 1998) by the new generation of AWTS offered for sale and installation in NSW.

NSW Health (NSW Health, 1994-5) produced evidence of failing AWTS as a need for the Guidelines and for the very stringent testing of the AWTS in order to protect householder and environmental health.

The Guidelines were published in 1998 and required all AWTS manufacturers, that wished to continue in the industry, to build an AWTS to a prescriptive guideline and then product test it to a performance standard. The Guideline required that a Quality Assurance system be implemented so that there were means of ensuring that all production model AWTS would consistently comply with the Guideline and the product tested AWTS model.

A year after the new accreditations were granted, evidence started to appear that showed that not all AWTS complied with the Guideline in matters of quality assurance and the mandatory prescriptive requirements. AWTSMA members questioned NSW Health about the issues and this paper discusses its replies. The paper also defines the roles of the various stakeholders and questions whether the accreditation process really engenders confidence in the stakeholders and the NSW public that there will not be failing AWTSs in the future.

The paper will be of interest to local government officers, representatives of rural dwellers and as a guide to assist in the selection process by those seeking to purchase an AWTS for a new house or in order to upgrade an existing failed septic system.

Many of the facts and matters referred to in this paper have been obtained from various sources which AWTS Manufacturers Association Ltd has relied upon and believes are true and accurate as at the time of preparing this report.

Key words

Accreditation, AWTS, compliance, guideline, NSW Health, quality assurance, testing.

1 A Brief History of the AWTS Industry

An aerated wastewater treatment system (AWTS) is a sewage treatment plant installed on houses in unsewered areas and is used to treat household wastewater before disposal by irrigation within the property.

The AWTS industry began in 1982 and by 1988 it was thriving. NSW Health supervised the type testing and issued type approvals that allowed AWTS to be installed in NSW. After

approval some AWTS had their approved design and specifications modified, causing some AWTS to produce a treated effluent that did not meet the required quality standard.

During the eighties and early nineties there was little or no enforcement of the State regulations by either local councils or NSW Health. NSW Health stated that it was the local council's responsibility to enforce the regulations and the councils blamed NSW Health for not supplying assistance to implement the regulations. The lack of regulatory control resulted in the proliferation of AWTS that varied from their approved design and specification.

By 1995 the results of performance surveys by NSW Health (NSW Health 1994-5) and various local Councils (Camden Council, 1995) showed that some of the AWTS installed in NSW were not performing to the required standard. In September 1995 due to these unsatisfactory results NSW Health published a draft guideline for the retesting of all AWTS (NSW Health 1995). Over the next three years it was modified until the NSW Health AWTS Guideline was published with an Interpretation Document (NSW Health 1998).

The AWTS Manufacturers Association Ltd (AWTSMA) was formed in 1995 to present a concerted voice to negotiate with the Government to ensure the best management of the industry and to provide safe and reliable AWTS for NSW householders. The Association tried very hard to persuade NSW Health to publish a performance based AWTS guideline, in the manner of an Australian Standard, rather than a prescriptive document.

A critical part of the new accreditation process was a six-month product test. This required each AWTS model to prove its ability to treat sewage to a specified quality that had been extracted from a sewage treatment plant operated by a public utility.

In October 1999 NSW Health refused to extend the AWTS approvals of the majority of manufacturers, citing as its reason that the manufacturers had not concluded the product testing of their systems and achieved accreditation to the new AWTS Guideline. However, one AWTS was awarded accreditation as it had finished its test by the nominated date.

Many politicians, Council officers and affected householders may remember the disaster caused by NSW Health's action in refusing to extend the original AWTS Certificate of Accreditation. Their action resulted in incredible disruption to the AWTS industry and havoc to the rural building programme. Builders could not hand over houses, as there were no sewage systems available. Over 200 jobs were threatened, and with the potential closure of many companies, thousands of homes could have lost the service providers needed to maintain their existing sewage management facilities. By August 2001, all except one of the original manufacturers had gained the new accreditation.

NSW Health sought to protect public and environmental health by instituting new prescriptive safeguards into the Guideline. One of these safeguards required each manufacturer to obtain Quality Assurance to ensure that every AWTS was manufactured to the same design and specification as the tested model. There were also prescriptive requirements covering capacities, servicing frequencies and alarm systems.

There was considerable debate between the Government and industry for many years about particular Guideline requirements. NSW Health realised that its innovative requirement for testing of the final effluent quality part way through the treatment process could not consistently produce satisfactory results and this testing was dropped from the testing protocol. The author was present when NSW Health requested that this method also be withdrawn from the Australian Standard.

The need to comply with the prescriptive requirements caused considerable delay and expense, as some AWTS had to be re-designed in order to comply with the Guideline; this involved extensive re-tooling by some manufacturers. If the implementation of quality assurance and the prescriptive specifications had not been required, the test would have been completed several years earlier and at far less cost. Initially the AWTSMA members resisted the need for quality assurance, now many years later its importance is realised.

The Guideline's opening sentence establishes NSW Health's position in regard to the level of compliance it was expecting, *"This Guideline sets out the minimum requirements for accreditation of Aerated Wastewater Treatment Systems (AWTS) by the NSW Department of Health"* (NSW Health, 1998).

It is not the AWTSMA's position or intention to publicise the names of any manufacturers that may not have complied with the Guideline; it is the regulator's responsibility to ensure that all AWTS comply with the guideline. Ultimately, councils can only approve the installation of systems that have been certified by NSW Health.

The initial investigation of checking compliance with the Guideline started because it was observed that not all AWTS in the market place met all of the guideline's prescriptive requirements over which there had been debate when the guideline was being written. These inconsistencies were reported to NSW Health by AWTSMA and NSW Health took action to stop the practice. Whether there was any requirement to undertake retrospective remediation procedures is unknown. However, it was then reported to the AWTSMA that not all manufacturers had a quality assurance scheme in place; this was later confirmed in a letter from NSW Health and further research was undertaken.

The AWTSMA members are raising these issues in order to protect its members' investment in their businesses and also to ensure that householders receive the AWTS that they expect to receive.

2 The Investigation

Before there was any knowledge about quality assurance matters, a letter detailing concern about other compliance issues was presented by AWTSMA to the Director of Health Protection, NSW Health, on 13th June 2001. In his very detailed reply of 5th July 2001 the Director sets out NSW Health's position on the accreditation of AWTS accreditation, *"From the outset 1 wish to confirm that NSW Health has always sought primarily to protect public health by introducing a third party accreditation system which is applied equally to the whole AWTS industry."*

The reply also explained that two of the points were the responsibility of the local council and two were the responsibility of the third party accreditation certifying body.

Since that meeting the Association has had an exchange of correspondence with NSW Health, plus another meeting. From May 2001 to September 2002 the AWTSMA explored numerous avenues and wrote letters to inform NSW Health about non-compliance with its Guideline.

There may be other non-compliance matters that have gone undetected. The AWTSMA members who undertook the research were only able to observe issues that presented themselves during the course of everyday business. It was not possible to make in depth examinations of all accredited AWTS.

3 A Matter of Quality Assurance

3.1 The need for a Quality Assurance system.

The new AWTS Accreditation System was implemented because many of the early AWTS models from the 1980s had been modified from their tested specification. Quality assurance was included to provide a documented means of checking that every AWTS was manufactured to the same design and specification as the AWTS that had successfully completed a product test. Without quality assurance procedures in place the specification of the newly accredited AWTSs could be altered.

In the supporting document to the 1998 Guideline NSW Health clearly defined its position on quality assurance, *"It is still considered vital that quality assurance procedures be adopted by AWTS Manufacturers to reduce the incidence of complaints and anecdotal evidence regarding poor quality of AWTS manufacturing. Quality assurance procedures also ensure that a valid complaint procedure is introduced and that proper records are maintained."* (NSW Health 1998b).

The quality assurance requirements changed through the various guideline drafts. The 1996 draft required certification of a quality system to AS/NZS ISO 9001 or 9002. The 1997 draft required product certification. The QA requirements of the current guideline are ambiguous and confusing as section 13 states, *"The manufacturer shall obtain Product Approval to the StandardsMark Quality Assurance Program or equivalent or be accredited to ISO 9000."*

In 1998 AWTSMA members established that Product Certification satisfied the guideline requirements and proceeded to implement it through the Joint Accreditation System of Australian and New Zealand (JAS-ANZ) accredited certifying body Quality Assurance Services (QAS). NSW Health accepted manufacturers with ISO 9000 and it was assumed that it also satisfied the guideline. After the turmoil of late 1999 and early 2000 everyone just wanted to put the past behind them and rebuild their companies.

However a common thread through all of the drafts and discussion was that JAS-ANZ had to be involved. JAS-ANZ accredits third party certification bodies that undertake quality assurance. As far as is known JAS-ANZ accredits all product certification or ISO 9000 certifying bodies in Australia. Therefore advice was sought from JAS-ANZ about the correct application of the various types of QA. The minutes of a meeting with the operations director of JAS-ANZ simply and definitely explains the two programmes:

"Both the ISO 9000 system and the StandardsMark scheme provide a degree of confidence to the end user or other interested parties. ISO 9000 series is a management system standard. The StandardsMark programme is a product certification scheme (product in this context could include tangible product, process or services), which includes a management system component and routine testing. However an ISO 9000 system does not require testing to a product standard as required by a product certification scheme."

Under ISO 9000, manufacturers are bound to notify the certification body of changes to the management or management system, but not necessarily product or process. The certification body should monitor changes through their normal surveillance activity. However, design and process changes may not necessarily be covered at every visit. Whereas under product certification, the manufacturer is bound to notify the product certifier when changes are made to the product or process.

An ISO 9000 certifying body is not accredited by JAS-ANZ to perform the annual sampling required by section 16.1 of the Guideline. Under management systems, JAS-ANZ does not make judgment on the individual's competence to undertake testing, this is only done under product certification.

Products manufactured under a StandardsMark must meet the requirements of a product standard. StandardsMark requires a higher level of compliance and offers a higher level of confidence to the consumer".

It is important to acknowledge that *StandardsMark* is a trademark for a product certification programme operated by SAI Global, formerly Quality Assurance Systems (QAS). When the Guideline was being written *StandardsMark* was the only JAS-ANZ accredited product certification programme, now in 2003 there are other accredited programmes.

NSW Health has accredited AWTS manufacturers that have both Product Certification and ISO 9000 programmes. The advice from JAS-ANZ indicates that the requirements and outcomes of the two types of QA system are quite different.

3.2 Manufacturing AWTS without any QA accreditation.

A meeting was held with NSW Health and members of AWTSMA on 10th October 2001 at Gladesville Hospital to discuss non-compliance issues. The Manager Environmental Health advised the meeting that NSW Health was aware that a manufacturer did not have an accredited QA programme in place. In a letter (21st December 2002) NSW Health advised that, *"The Department has now set a time limit of the end of February 2002 on the finalization of the quality assurance program."*

On 27th February 2002 the AWTSMA's solicitors made a further enquiry of NSW Health to see if NSW Health had acted upon its own deadline, but in its reply of 8th March 2002 NSW Health explained that it was not intending at that time to take any action to force compliance with the February deadline, *"The Department has received advice that the quality assurance program has been substantially commenced. At this stage the Department does not intend to take any further action regarding their accreditation."*

The effects of a manufacturer not having a JAS-ANZ accredited QA system are:

1. There is no JAS-ANZ accredited means of confirming that its AWTS have been manufactured to the same specification as the AWTS that was tested.
2. A financial benefit is enjoyed by not being burdened with the cost of administering a QA programme. For some larger manufacturers this will amount to an annual expense of tens of thousands of dollars, for smaller manufacturers it amounts to a significant cost per unit.

In 1999 NSW Health stated that its reason for not extending the existing accreditations of nearly all manufacturers was because they had not complied with the guideline and completed the testing of their AWTS. Is NSW Health going to act in a consistent manner in 2003 if any manufacturers have not completed their QA programme?

4 Other Non-Compliance with Prescriptive Guideline Requirements

The QA matters overtook the original non-compliance issues and as explained earlier it is not AWTSMA's position to expose manufacturers, but it is worth mentioning some of the issues so stakeholders know their responsibilities.

All AWTS vessels had to be NSW Health accredited. For a short time one AWTS was using tanks that had not been so accredited. NSW Health explained that it was each council's responsibility to ensure that all tanks are separately accredited.
There was an exchange of correspondence over whether all AWTS had the mandatory 1000 litres of surcharge capacity prior to overflow into the contact or irrigation chambers. Questions were raised about the method used to calculate that capacity.

Not all AWTS were equipped with the prescribed new style of alarm that reset every 24 hours until the fault was repaired. This was probably the greatest benefit of all of the Guideline requirements.

For a period some AWTS were manufactured in tanks that differed in size and shape from those specified in their accreditation. As far as is known there has been no requirement to replace those tanks with the tanks shown in the Certificate of Accreditation. It was considered to be an installation issue that should have been assessed by the council.

Questions were asked why a manufacturer was allowed to extend the quarterly service periods specified in the Guideline.

5 Responsibilities of the AWTS Stakeholders

A number of Council Environmental Health Officers have expressed concern *(pers comm.)* when discovering their role in approving AWTS. They had thought that once an AWTS was accredited, their only responsibility was to ensure that the AWTS being installed was the brand and model described on the septic tank approval.

It is therefore pertinent to list the responsibilities of stakeholders in the AWTS approval procedure.

1. NSW Health has to confirm that an assessment was made on each Guideline item.
2. The Quality Assurance Certifying Body must be accredited by JAS-ANZ, and if one accepts the view of JAS-ANZ, it should be for a Product Certification type scheme. Its function is to supervise the testing programme and to carry out ongoing management system audits, sampling and testing of the AWTS.
3. The function of local government is to ensure that the AWTS being installed conforms in detail with the accredited specification. Every manufacturer is obliged to furnish each council in which it operates with a complete set of data about its AWTS.
4. The AWTS manufacturer is required to manufacture the AWTS in accordance with the accredited specification. The manufacturer is also required to implement and maintain a third party product certification QA system from a certifying body accredited by JAS-ANZ.

6 The Government's Responsibility to Rural Dwellers

The selection of an AWTS is a difficult decision. Most landholders do not have the training to scientifically evaluate an AWTS before making their selection. Many buy from the company with the best sales people, or select by price and rely on a commonly used adage that, "it does not matter which one we install, as they are all approved by the Council".

The NSW Government makes the landholder the operator of a sewage management system (often an AWTS) and specifies that it must produce treated effluent to a performance standard. Should an AWTS fail to meet the effluent discharge performance standard, it is the landholder who has to pay to have the AWTS brought up to a condition that enables it to function correctly.

All stakeholders have as a minimum the moral duty to ensure that only complying AWTS from correctly accredited manufacturers are available for installation in NSW in order to protect the health of AWTS users.

7 The NSW Government is Aware of the Issues

Correspondence from the Minister of Health in 1997 to the author indicated that the NSW Government is aware of the original issue of failing AWTS and that it was relying on the procedures contained in the AWTS Guideline to improve the situation.

In August 2003 NSW Health released its new draft guideline for the accreditation of all sewage management facilities. In this guideline the manufacturer is required to obtain a licence from a product certification body accredited by JAS-ANZ. There is no mention of accreditation to ISO 9000. This now raises the question, what is the status of any AWTS manufactured without a JAS-ANZ accredited quality assurance programme, or those that have been manufactured under an ISO 9000 programme?

In February 2003, Liberal MP Peta Seaton (*pers.com.*) raised with the NSW Ombudsman the matter of a manufacturer not having QA and why NSW Health accepted an ISO 9000 type programme when JAS-ANZ presented different advice. After consulting NSW Health the Ombudsman concluded that the issue was not a matter for his office.

The NSW Government website revealed that on 2nd July 2003 the Minister of Health received ten written questions from Mr Barrie O'Farrell, the Opposition spokesman for health. Some questions were concerned with quality assurance issues and whether the whole re-accreditation process was introduced to prevent potential health issues such as the Wallis Lakes hepatitis scare. The Minister was also asked if he was aware that a time limit of the end of February 2002 had been placed by his department on one manufacturer to finalise its quality assurance programme and if any products from that manufacturer were on the market beyond the deadline and not correctly accredited. The last question asked that if such a product failed would NSW Health compensate any householders who have purchased one of those AWTS? The Minister is due to reply in September, after this paper goes to print.

8 Conclusion It is worthwhile to repeat the first sentence of the Guideline, *"This guideline sets out the minimum requirements for accreditation of AWTS by the NSW Department of Health."* The AWTS Manufacturers Association believes, based upon its investigations, that there are AWTS installed in NSW that have not met the minimum requirements of the Guideline.

In 1999 NSW Health placed sufficient importance on complying with the Guideline to send the industry into turmoil by not extending the existing accreditations of nearly all manufacturers. What actions is it going to take in 2003 if there are still AWTS being installed that do not comply with those Guidelines?

Will any actions from disgruntled householders be left for the local council to manage? It is going to be difficult to force householders to make their AWTS comply with the effluent quality standards when they may not have been correctly manufactured in the first instance.

In its new draft guideline for all on-site treatment systems NSW Health will only accept a JAS-ANZ accredited product certification programme. This raises the question of the status of AWTS that have been tested and are still being manufactured under an ISO 9000 type programme.

This paper has concentrated only on major issues that could be supported with solid evidence. It is stressed that there was not an opportunity to examine all AWTS when undertaking research for this paper. A number of AWTS now comply with the guideline because of the actions of AWTSMA in raising awareness of the issues with NSW Health.

AWTSMA members manufacture their AWTS according to the Guideline. It is hoped that in the future the guidelines will be applied more equally to all manufacturers so that both the manufacturers and NSW Health can work together to produce good quality AWTS for the protection of public and environmental health. All AWTS manufacturers want nothing more than a 'fair go'.

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